



**Table 1: The Ratios of Substrate to Chiral Ligands (S/C)**

Entry <sup>a</sup>	Ligand	S/L	Conversion (%)	33 : 34	e.e.(%)
1	4d4c	5000	80	1 : 0	99.0 (R)
2	4d4c	2000	100	1 : 0	99.1 (R)
3	4d4c	1000	100	1 : 0	99.2 (R)
4	4d4c	333	100	1 : 0	99.3 (R)
5	4d4c	166	100	1 : 0	99.3 (R)
6	4d4c	100	100	1 : 0	99.3 (R)
7	4d4c	50	100	1 : 0	99.4 (R)
8	4d4c	20	100	1 : 0	99.4 (R)
9	4d4c	10	100	1 : 0	99.5 (R)
10	4d4c	5	100	1 : 0	99.5 (R)
11	2b4b	10000	68	1 : 0.015	95.0 (R)
12	2b4b	5000	81	1 : 0.005	97.7 (R)
13	2b4b	2000	82	1 : 0.005	98.1 (R)
14	2b4b	1000	100	1 : 0	99.3 (R)
15	2b4b	200	100	1 : 0	99.5 (R)
16	2b4b	100	100	1 : 0	99.5 (R)
17	2b4b	20	100	1 : 0	99.6 (R)
18	2b4b	10	100	1 : 0	99.6 (R)
19	2b4b	5	100	1 : 0	99.7 (R)
20	2b4b	2	100	1 : 0	99.6 (R)
21	5d5c	10000	68	1 : 0.015	98.1 (R)
22	5d5c	5000	81	1 : 0.005	98.9 (R)
23	5d5c	2000	82	1 : 0.005	99.0 (R)
24	5d5c	1000	100	1 : 0	99.1 (R)
25	5d5c	500	100	1 : 0	99.1 (R)
26	5d5c	200	100	1 : 0	99.2 (R)
27	5d5c	100	100	1 : 0	99.3 (R)
28	5d5c	50	100	1 : 0	99.3 (R)
29	5d5c	20	100	1 : 0	99.3 (R)
30	5d5c	10	100	1 : 0	99.4 (R)
31	5d5c	5	100	1 : 0	99.4 (R)
32	5d5c	2	100	1 : 0	99.4 (R)
33	5d5c	1	100	1 : 0	99.0 (R)

<sup>a</sup> All of the above reactions used benzaldehyde as the substrate, toluene as the solvent. <sup>b</sup> 3.7 eq of Et<sub>2</sub>Zn was used. <sup>c</sup> The reaction were carried at -20°C for 12hrs <sup>d</sup> S/C was the ratio between the substrate and chiral ligand.